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ABSTRACTS FROM EAST EUROPEAN
SCIENTIFIC AND TECHNICAL JOURNALS
(Physics and Mathematics Series)

No. 41

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OFFICE OF TECHNICAL SERVICES
JOINT PUBLICATIONS RESEARCH SERVICE
Building T-30
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Price: \$1.10

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ABSTRACTS FROM EAST EUROPEAN
SCIENTIFIC AND TECHNICAL JOURNALS
- Physics and Mathematics Series -
No. 41

This report consists of abstracts of articles from the East European scientific and technical journal listed in the table of contents below.

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<u>Jaderna Energie</u> , Prague, Vol 8, No 11, Nov 62	1

CZECHOSLOVAKIA

SIVCIK, A., Dr Regr; (affiliation not given)

"The 45th Anniversary of the Great October Socialist Revolution."

Prague, Jaderna Energie, Vol 8, No 11, Nov 62, p 381

Abstract: Editorial expressing gratitude for Soviet aid during past 7 years, in nuclear sciences and construction of first Czechoslovak nuclear power plant. Significance of Joint Nuclear Research Institute, in Dubna, stressed. No details or references.

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CZECHOSLOVAKIA

HASEK, Milen; Institute of Hygiene (Ustav hygieny), Prague

"Determining Atmospheric Radioactivity in the Area Surrounding a Nuclear Reactor, on the Basis of Measured Turbulent-Diffusion Parameters."

Prague, Jaderna Energie, Vol 8, No 11, Nov 62, pp 382-388

Abstract [Author's English summary, modified]: Effects of terrain and meteorological conditions upon dissipation of radioactive fall-out from nuclear reactors, and slightly modified version of Sutton's method for computing maximum concentrations of substances polluting the atmosphere as the result of turbulent effects are discussed. A new mathematical relation between temperature gradient and meteorological exponent was found. On the basis of Scrase's assumptions, simplified macroviscosity measurements were made. Values obtained in field measurements by the author and by others are given. Measurement and computation of maximum concentrations, on the basis of Lowry's simplified formulae, are discussed in detail. Finally, certain new problems in connection with atmospheric pollution of vicinities of nuclear power plants are solved. Of the 39 references, half are Soviet-bloc, half Western.

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CZECHOSLOVAKIA

DARU, Otakar, of the Lenin Works National Enterprise (Zavody V. I. Lenina, n.p.); and DLOUHÝ, Zdenek, Nuclear Research Institute (Ustav jaderného výzkumu) of the ČSAV (Československá akademie věd; Czechoslovak Academy of Sciences) "Decontamination Tests of Various Metal Surfaces and Several Types of Coating Systems."

Prague, Jaderná Energie, Vol 8, No 11, Nov 62, pp 369-393

Abstract (Authors' English summary, modified): The radioactivity sorption of some materials (selected on the basis of their application in nuclear power plant design), and the decontamination efficiency of some solutions were tested. A mixture of fission products was used as the contaminant. Six references, five Westerns, one Soviet.

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CZECHOSLOVAKIA

SLAVONÍK, ČARL, State Research Institute for Thermal Engineering (Státní výzkumný ústav tepelné techniky), Prague

"A Contribution to the Problem of Optimum Parameters for Nuclear Power Plants."

Prague, Jaderná Energie, Vol 8, No 11, Nov 62, pp 393-400

Abstract (Author's English summary modified): A method for determining the parameters of nuclear power plants that are the optimum from the viewpoint of the cost of the generated electricity is described. The approximate method is convenient in the first phases of planning, and for limiting the number of possible combinations in the detailed optimization computations. Four references, all Czech.

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CZECHOSLOVAKIA

BEROUMEK, Frantisek; Faculty of Industrial and Nuclear Physics (Fakulta technické a jaderné fyziky), ČVUT [České vysoké učení technické; Czech Institute of Technology]

"Determination of Very Low Specific Activities of Solutions."

Prague, Jaderná Energie, Vol 8, No 11, Nov 62, p 400

Abstract: A polemic reiteration of allegations to the effect that J. Ral'kova had made dosimetric errors in her series of articles (in the 1960 and 1961 issues of Jaderná Energie) on determining very low specific activities of solutions, with the aid of scintillation counters.

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CZECHOSLOVAKIA

KYBL, Miroslav; Nuclear Research Institute (Ústav jaderného výzkumu)

"The Mechanism of Extracting with Nitrobenzene Certain Cesium Compounds from the Hydrous Phase." [Summaries only]

Prague, Jaderná Energie, Vol 8, No 11, Nov 62, pp 400-401

Abstract [Author's English summary modified]: Results of cesium extraction -- in the presence of dipicrylaminato, tetraphenylborate, polyiodide, and iodobismuthite -- with nitrobenzene are analyzed. Of all solvents tested, nitrobenzene always showed the highest partition coefficient. For sodium and the corresponding anions, higher partition coefficients were obtained by using other, less potent solvents. The separation factor for the pairs $\text{Cs}^+ - \text{Na}^+$ (approximately $2 \cdot 10^4$) and $\text{Cs}^+ - \text{Rb}^+$ (approximately 5) is practically independent of the type of anion present. An essential dissociation of the cesium salts in nitrobenzene was found. It is supposed that cesium ions are strongly solvated by nitrobenzene molecules (more strongly than sodium). The principal reaction of the extraction mechanism is $\text{Cs}^+(\text{aq}) + \text{A}^-(\text{aq}) \rightleftharpoons \text{Cs}^+(\text{org}) + \text{A}^-(\text{org})$. It is sufficient if the salt is able to yield a reasonably high concentration of free anions in the nitrobenzene phase.

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CZECHOSLOVAKIA

LEMGER, Vladimír; Institute of Experimental and Clinical Surgery (Ustav experimentální a klinické chirurgie), Prague

"About the Purity of Radioactive Materials."

Prague, Jaderná Energetika, Vol 8, No 11, Nov 62, pp 402-403

Abstract: General review of modern methods for ensuring the purity of radioactive materials. Based entirely on the proceedings of the 15 April 1961 symposium on the purity of radioactive chemicals, at the Westminster Medical School.

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CZECHOSLOVAKIA

SOLDAT, Petr; Nuclear Research Institute (Ustav jaderného výzkumu) of the CSAV (Československá akademie věd; Czechoslovak Academy of Sciences)

"Integrator of Reactor Performance."

Prague, Jaderná Energetika, Vol 8, No 11, Nov 62, pp 403-405

Abstract: Description, diagram, and three photographs of the electro-mechanical integrator (its meter is governed by a toroidal transformer) for computing the burn-out of fuel elements, on the basis of total reactor performance. In its second year of use at the Czechoslovak reactor, the device is termed simple; only the winding of the toroidal autotransformer requires special care.

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CZECHOSLOVAKIA

KNOBLOCH, P., and CHALUPA, Z. [affiliations not given]

"The Byeloyarskaya Nuclear Power Plant."

Prague, Jaderna Energie, Vol 8, No 11, Nov 62, pp 405-410

Abstract: Report on the Soviet nuclear power plant being built near Sverdlovsk. Five photographs, four graphs, and two tables. Based entirely on articles by YEVDOKIMOV et alt., and SMIRNOV-AVERIN et alt., in Atomnaya Energiya, Nos 1 & 2, 1961.

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CZECHOSLOVAKIA

BOUCEK, J., KOZEL, V., and HERYCH, J. [affiliations not given]

"Importance of Practical Experience in the Level of Training at the Secondary Industrial School of Nuclear Technology, Prague."

Prague, Jaderna Energie, Vol 8, No 11, Nov 62, pp 418-419

Abstract: Brief discussion of the educational and economic advantages of practical training at industrial schools. List of instruments prepared by the graduating class of the Secondary Industrial School of Nuclear Technology (Stredni prumyslove skola jaderne techniky), for the Biophysical Institute (Biofyzikalni ustav) of the Faculty of General Medicine (Fakulta vseobecneho lekarstvi) at Charles University (Karlova Universita).

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CZECHOSLOVAKIA

NEIDMANN, L. (affiliation not given)

"Seminar on the Technology of Processing Uranium Ore."

Prague, Jederné Energie, Vol. 8, No 11, Nov 62, p 409

Abstract: Lists authors and titles, and gives very brief summaries of lectures at the 30 May 1962 seminar held at the Advanced School of Chemical Technology (Vysoka škola chemicko-technologicka) in Prague, under the sponsorship of the Nuclear Engineering Committee (Komise jaderné techniky) within the Central Council of Czechoslovak Scientific and Technical Societies (Ústřední rada Československé vedecko-technické společnosti).

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